

V. REMARKS ON THE GEOGRAPHICAL DISTRIBUTION OF THE *HYLOPHILI.*

As will be seen by the subjoined Table, the known species of *Hylophilus* are thinly distributed over the northern and more characteristic portion of the Neotropical Region from Mexico to Southern Brazil. They are entirely wanting in the Patagonian subregion and in the arid Pacific coast-region south of Guayaquil. In Western Ecuador one species certainly occurs, but we are only imperfectly acquainted with it. I have not yet met with any examples of this genus in collections from Bolivia, but it is almost certain that some species occur in the forest-region of that country.

	Mexico and Centr. Am.	Panama.	Colombia.	Venezuela & Trinidad.	Guiana.	Lower Amazonia.	Upper Amazonia.	S.E. Brazil.	Western Ecuador.
1. <i>H. thoracicus</i>	...	...	*	...	*	*			
2. <i>H. pectoralis</i>	...	...	...	...	...	...	...	*	
3. <i>H. decurtatus</i>	*	*							
4. <i>H. muscicapinus</i>	...	...	...		*				
5. <i>H. pœcilotis</i>	...	...	...	...	...	...	...	*	
6. <i>H. amaurcephalus</i>	...	...	...	...	...	...	...	*	
7. <i>H. semibrunneus</i>	...	...	*						
8. <i>H. flaviventris</i>	...	...	...	...	...	...	*		
9. <i>H. fuscicapillus</i>	...	...	...	...	...	...	*		
10. <i>H. aurantifrons</i>	...	*	...	*	*	...	...	...	*?
11. <i>H. insularis</i>	...	...	...	*					
12. <i>H. brunneiceps</i>	...	...	...	...	*	*			
13. <i>H. ochraceiceps</i>	*	*				*			
14. <i>H. rubrifrons</i>	...	...	...	...	...	*			
15. <i>H. ferrugineifrons</i>	...	...	*	...	*	*	*		
16. <i>H. luteifrons</i>	...	...	...	...	*				
17. <i>H. semicinereus</i>	...	...	...	...	...	*			
18. <i>H. flavipes</i>	...	...	*	*					
19. <i>H. viridiflavus</i>	...	*							
	2	4	4	3	6	5	3	3	1

XXVII.—*Eleven Weeks in North-eastern Brazil.* By W. A. FORBES, B.A., Prosector to the Zoological Society of London.

HAVING been able during the past summer to gratify a wish that every naturalist must feel more or less strongly—to visit

personally some part of the tropics—by making a short excursion to the provinces of Pernambuco and Parahyba do Norte in Brazil, some account of my ornithological doings there may be acceptable to my brother members of the B. O. U.

Although Pernambuco is situated nearer to Europe than any other important city in South America, and is, indeed, the first port usually touched at in that continent by the various lines of mail-steamers to the Brazilian Empire and River Plate, very little appears to be known as regards any branches of its natural history. Mr. Darwin was there for a few days on his homeward voyage in the 'Beagle,' and has given us, in his 'Journal'*², some account of it, but he says nothing about its zoology. Swainson, in 1817, visited this part of Brazil† and collected some bird-skins, some of which are now, I believe, in the Cambridge Museum. Collections of bird-skins made in this locality have also from time to time come into the hands of Parzudaki and other dealers, but nothing, I believe, has been recorded of the avifauna of the district. Pernambuco being thus, as was pointed out to me by Mr. Sclater, comparatively little known and easily accessible from this country, I determined on making a short trip there. I left England accordingly on June 24th, in the Royal Mail Steamer 'Guadiana,' and arrived at Lisbon five days afterwards. Here I landed for a few hours, and of course called on the well-known Portuguese naturalist, Professor Barboza du Bocage. Unfortunately, however, it was a Saint's day, or some similar "*feira*," and he was absent in the country and the Museum closed. The only birds of interest I saw at Lisbon were three nice living Blue Magpies (*Cyanopica cooki*) in one of the numerous bird-shops near the river. Stormy Petrels (*Procellaria pelagica*?) had appeared on June 26th in the Bay of Biscay, and followed the ship for a day or two to Carril, and now, after leaving Lisbon, they were again seen once or twice. St. Vincent was reached on July 5th; but unfortunately the ship was put into quarantine, having taken on board a passenger from the Lazaretto at Lisbon;

* Nat. Voy. (1870) pp. 497-499.

† Lardner's Cab. Cycl. "Tax. and Biogr. of Nat." p. 344.

consequently there was no getting on shore. Thus I had to console myself by watching from the ship the numerous Egyptian Vultures (*Neophron percnopterus*) flying about the town, and was also gratified by seeing, for the first time, one or two Frigate-birds (*Fregata aquila*) soaring high in the air. As I again saw several of these birds (all in immature plumage) on my voyage home in October at the same place, I have little doubt that *Fregata* breeds somewhere in the Cape-Verd group, very likely on the "Bird Rock" that lies at the mouth of the harbour of St. Vincent. After leaving these islands no birds appeared for some days, save a solitary black-and-white Petrel (? *Fregetta grallaria*) seen in the distance; its flight, I noticed, was very different from that of the *Procellaria*! Passing Fernando Noronha on the evening of July 10, a Noddy (*Anous*, sp. *) flew on board and was caught by a sailor.

Numerous flying-fish and *Physaliæ*, the usual accompaniments of an intertropical voyage, helped to break the monotony of the sea, till Pernambuco was reached on July 12.

Pernambuco or, as I shall henceforth call it, Recife (the latter word meaning a reef, from the celebrated sandstone reef, described by Darwin and others, which forms its harbour) lies low, being built on a sort of delta of two small rivers, the Capibaribè and the Beberibè, which here flow into the sea. A little to the north of Recife is the old town of Olinda, situated on a hill of perhaps 200 feet or so above the sea, and commanding an extensive view of the flat and marshy country to the south which immediately surrounds Recife. Looking inland from this, the ground is seen to rise gradually, and then becomes more or less forest-covered, these low hills running to the south and west, and continuing into the hilly country which runs thence, more or less parallel with the coast, both north and southwards.

Recife itself, now probably the second city of the Brazilian Empire, with a population of about 90,000 souls, consists of three towns, connected with each other by excellent iron bridges. That with the port is Recife proper; the other two are called

* I will not venture to ascribe any specific name to this bird, seeing the difficulty that attaches to its correct determination.

San Antonio and Boa Vista. Northwards there lies between Recife and Olinda a low, mangrove-covered, swampy tract, separated from the sea by a beach of sand and shingle, whilst to the south lies Cocoa-nut Island and more swampy country. Towards the west lies the suburb called Boa Vista; and here, and extending more or less to Caxangá (an outlying village celebrated for its pine-apples, with which Recife is connected by a street-railway), are situated the villas and houses of the more wealthy inhabitants. These are generally surrounded by gardens, often well kept and stocked with all kinds of tropical plants, native or otherwise. Here, in a quarter called Estancia, I found excellent accommodation at a boarding-house kept by two American ladies, and tenanted chiefly by Englishmen engaged in business in Recife. As the house stood in a large garden of its own, with numerous fruit-trees, and abutted on a considerable tract of marshy and little cultivated ground, I determined on making this my head quarters, and after safely passing my baggage through the Custom House, set to work on the birds and insects.

There are some considerable patches of wood on the outskirts of the town in this direction, and numerous more or less deserted gardens, orangeries, and pieces of marshy ground, in which birds were fairly abundant, though in the town itself—excepting *Urubùs* (*Cathartes atratus*), a stray Humming-bird or two, Swallows (*Hirundo leucorrhoa*), and “Lavenderas” (*Fluvicola climacura*), which last are to be seen everywhere and are very tame, like Robins—not a bird is to be seen. No regular forest is met with till near Caxangá, about 8-10 miles from Recife, where the country becomes hilly and covered with thick wood, which, in places, is, I believe, undoubted virgin forest, though most of this has been cleared and replaced by second-growth (*capoeira*) of varying size and thickness.

Unfortunately the weather was not at all favourable to collecting during my stay in Recife, the rainy season, which usually, I was told, ceases about the end of July, lasting on more or less for another month*. As the soil here is, as nearly

* The dry and hot weather (which also is the season for yellow fever

universally elsewhere in Brazil, a thick red clay, the roads and by-paths remained almost impassable, rain falling heavily nearly every day for some hours.

In the "Gymnasium" of San Antonio is a small museum, with a decent, though badly named, series of birds and Mammalia. Most of the birds, however, are either from Pará or Rio, comparatively few from Pernambuco itself. I noticed two specimens of *Rhea macrorhyncha* (of which more below) and an *Ara spixi*, said to be from Angola! Amongst the Mammalia I saw some good specimens of the big Armadillo (*Priodontes*), which were said to be from the Sertoões of the interior.

After being in Recife for about ten days, an opportunity occurred of making a flying visit to Goyanna, a town situated near the coast about fifty miles north of Recife, and a great emporium of the sugar-trade. As there is a decent road the whole way, which passes by Olinda and Iguarassu, and the weather was not at all settled, we decided to drive. I was thus enabled to see something of the general features of the country, though there was little chance of shooting birds. Between the two towns the country rises somewhat, the more elevated parts being pretty generally covered with forest, often thick, whilst the lower slopes of the hills, and the moister bottoms between them, are nearly uniformly cleared or planted with sugar, some of the fields being of enormous extent. Birds were plentiful, especially in the more wooded parts; and I now saw Jacamars and Parrots alive and wild for the first time, as well as "Sangre de Boi" (*Ramphocelus brasilius*)

on the coast) in Pernambuco commences about September and continues till March. November, January, and February are usually about the hottest months. May, June, and July are all very wet months, on the coast at least. The heat, even during the hot season, is never very great; during my stay, the ordinary temperature was about 78°-80° F. in the shade, and about 8°-10° cooler at night. The thermometer rarely falls below 65° even on the coldest nights, and at that temperature one begins to shiver in the tropics and want blankets! Further information on the climate of Pernambuco will be found in a paper by M. Beringer in the 'Annuaire' of the French Meteorological Society, vol. xxvi. p. 28 (1878).

and many other birds not to be found in the immediate vicinity of Recife.

After about three weeks' stay at Estancia, I paid a week's visit to Cabo, a station about twenty miles from Recife on the Recife and São Francisco Railway, and the head quarters of the staff of that Company. Mr. Wells Hood, the general manager of the line, with whom I had gone out from England, possesses a capital residence here, and was kind enough to entertain me during my visit to Cabo. Here the country, which is generally flat so far, begins to rise in low, rounded hills, of no great elevation, which are covered, on their tops and steeper slopes, with the remains of the virgin forest. Unfortunately the weather during my stay at Cabo was exceedingly bad. It rained continuously for about three days, which resulted in a general flood of all the low-lying ground in the vicinity. Hence my collection of birds did not increase much, though I believe from what I saw that Cabo would in more favourable weather be a good locality. On August 12 I returned to Estancia, making excursions thence to Caxangá and other places in the vicinity. Having pretty well exhausted the neighbourhood of Recife by this time, on August 18 I started for a trip to Parahyba do Norte, the capital of the next province to the north of Pernambuco, in company with my friend Mr. C. A. Craven, of the Recife Gas Company, whose acquaintance I had made in Recife, and whom I found much interested in the natural history of the country. Parahyba is about ten hours' run up the coast, and I found the steamers belonging to the Brazilian Steam Navigation Company by no means worthy of the evil reports I had heard of them. They are fine, well-built boats, receiving a heavy government subsidy for each trip made. By their means communication is kept up between the imperial capital and the capitals of the more northern provinces of the empire up to Pará. Parahyba is situated in reality only about four to five miles from the sea-coast, on a river which is navigable, for these steamers nearly up to the town. The river, however, turns off considerably to the north at about the point where the town is situated, so that it is a trip of some ten to

fifteen miles up the river from the bar at its mouth to where the steamer stops. The country is low, and the river is fringed on each side with mangrove-swamps, behind which the forest-covered country, which rises towards the interior, appears. On the mud-banks exposed at low tide many white Egrets (*Ardea candidissima*) might be seen, as well as tens of thousands of a large and brightly coloured land-crab, with vermilion white-tipped claws, which gave quite a bright appearance to the scene. A railway, the Conde d'Eu, has just been commenced at Parahyba, to run inwards for about fifty miles, with the object of developing the sugar business. The inaugural fêtes which celebrated the turning of the first sod had just terminated when we arrived, and the English engineers charged with the construction of the line were now the most important and popular personages in the town. Their then chief, Mr. A. M. Rymer Jones, a son of the well-known naturalist lately deceased, was kind enough to entertain me at the house they occupied, and he and his companions made us very much at home during our stay there.

The country round Parahyba is flat, but rather thickly covered with forest, which extends from near the town to near the sea. I succeeded in securing the services of a Brazilian "Caçador" to shoot and show the way about. Though the number of birds I got did not at all equal the anticipations I had formed from his glowing accounts of the abundance of all kinds of beasts and birds around Parahyba, I nevertheless got a considerable number of new ones, and had several very enjoyable excursions with him and some of my English friends. Besides the thick forests, nearer the town there is a good deal of scrub and bush-covered country, where small birds were rather plentiful. In the forests, indeed, these were far less abundant than in the more open parts; and several times I walked for miles along tracts in the high and thick forests scarcely seeing or hearing a bird of any kind. "Antonio," however, assured us that at the proper season of the year, *i. e.* when the fruits were ripe, these forests abounded with "Tocanos," "Trocas" (*Columba speciosa*), "Gallegas" (*Columba rufina*), and many other birds of which

I saw nothing. Antonio himself was armed, like most Brazilians, with an ancient muzzle-loader of French make; it was quite uncertain whether or not this weapon would go off when needed. Usually it missed fire three or four times in succession, by which time the bird aimed at had generally been prudent enough to retire out of range. Hence he did not increase my bag very much, though his astonishment at the shooting-powers of my own gun, a double-barrelled central-fire of 16 bore, was immense, a successful shot being invariably greeted with much gesticulation of delight and loud remarks of "*Espingarda boa, espingarda ingleza,*" &c.

After a very pleasant week at Parahyba I returned to Recife by the steamer on the 24th. The 'Espírito Santo,' which had come from Pará, had on board as miscellaneous an assortment of passengers as I have ever travelled with, and it would be difficult to say whether there were more parrots or slaves on board; of the latter we had at least 200, on their way south to Rio to be sold for the coffee-plantations. Besides the parrots, chiefly *Chrysotis æstiva*, there were a lot of other birds and beasts, including a nice and tame *Lagothrix* and some electric eels. Of the birds, the most noticeable was an *Icterus chryscephalus*, said to have come from the Rio Negro. This I bought, and kept alive in Recife, but unfortunately it died on its way home just as we got to Lisbon. I never saw the species alive in Europe nor elsewhere in Brazil.

When I left England I hoped to be able to go overland from Recife to the great waterfall Paulo Affonso, the "Niagara of Brazil," on the S.-Francisco river. However, the state of the roads up to the present time, as well as the difficulty of getting an interpreter (my own knowledge of Portuguese being very rudimentary), had prevented my making a start as soon as I had hoped. At length I succeeded in getting hold of a man who would do, and a day or two after my return from Parahyba, started with him from Recife. I had also endeavoured to get some one to skin and shoot, but in this was unsuccessful, the only man I could hear of wanting terms for his services which were quite unreasonable. The Recife and S.-Francisco railway runs

for about 70 miles in a S.S.W. direction towards the river from which it derives its name. From its terminus at Una (or Palmares) another line of about the same length is now in progress, continuing it on to Garanhuns, which is situated about halfway in a straight line between Recife and the Paulo Affonso. It was originally intended to have continued the line to the river above the falls near Boa Vista, and so to have brought down all the traffic of the upper part of the S.-Francisco river to the port of Recife. This, however, has proved too expensive for the government, and the "Prolongamento," as it is called, is now destined to stop at Garanhuns. There is therefore but little chance at present of the Recife and S.-Francisco railway ceasing to be a misnomer. A line, however, has been made and opened from the river above the falls near Tacaratú to Piranhas, situated below them, so that the traffic that was to have come to Recife now goes down to Penedo and Maceio at the mouth of the river.

The line of railway after leaving Cabo passes through a country similar to that which I have described as commencing there. The cultivation of sugar is general, and it is only on the tops of the hills, which are more or less rounded, hummocky, and low, the highest being perhaps 700-800 feet in height, that any extent of the virgin forest is left. In some places along the line patches of quite open country may be seen, which are covered with grass, without trees or undergrowth, and in general character a good deal resemble our south downs. I at first thought they were natural, but afterwards found out that they were *inclosed* spaces, used for horses and cattle. The grazing has evidently prevented them from becoming covered with a thick growth of *capoeira*, which always covers the hills where these have been cleared for sugar and afterwards allowed to lie fallow for a time. The destruction of the forests is still going on, as new ground is continually cleared by burning and cutting away the undergrowth for more sugar, so that in a few years there will, if this goes on, be little trace of the old forests left.

At Palmares the railway ceases, and henceforward all travel-

ling and traffic has to be done on horseback, there being no roads in the interior worthy of the name. The earthworks of the "Prolongamento" are now nearly complete, only a few of the deeper cuttings and a tunnel or two being unfinished. The line of railway now forms the chief road to the interior; but at this time, after the end of the rainy season, the stiff red clay had become worked up, in most places, into the most frightful mud conceivable, so that the horses were often up to their knees in it, and the rate of progression in consequence was a walk. At Palmares I was fortunate enough to fall in with the engineer-in-chief of the first section, Dr. Abel, a most pleasant and well-educated Brazilian gentleman. He too was going up country with the paymaster, so that I had the advantage of his company and escort (two Brazilian troopers) for the first part of my ride. As far as Barra do Jangada (a small village situated on the river Pirangi, which falls into the Una near Palmares), about thirty miles from Palmares, the country retains much the same features, though it gradually rises towards the interior. The hills perhaps are higher, and in some places, as around Catende, still pretty thickly covered with "*matto*" (the Brazilian term for the virgin forest), there being less sugar-cultivation here than nearer the coast. Towards Barra do Jangada cotton appears for the first time, a sure sign of the increasing elevation of the country. Riding along in this way I had no opportunity of shooting, but from the saddle I saw many birds already seen or secured. The "*Sangre de Boi*," however, disappeared soon after leaving Catende, and I saw no more of it as we approached the Sertoões. Another day's ride brought us to Quipapá, the most important town between Una and Garanhuns.

After leaving Barra the country gets decidedly more hilly and open, and the forest begins to disappear, though many blackened and dead trunks of old forest trees standing on the higher hills show that this is due in large part to man's action. The soil is still clayey, resting on solid rock, apparently granite or gneiss, which in some places on the shoulders of the hills is left quite bare in great rounded patches. These

at first suggest glacial action ; but I am inclined to think that in reality they are merely the beds of old streams which formerly flowed down over them before the disappearance of the forests on the hills around had reduced the rainfall, and so caused their drying-up. I had no chance of shooting before getting to Quipapá, though between that town and Barra I fell in with a fine specimen of the much dreaded Jararaca (*Trigonocephalus brasiliensis* ?), a rather rash attack on which resulted in nothing further on my part than a narrow escape from being bitten.

Quipapá is distant 12 leagues from Palmares, on the Pirangí, and is at an elevation of about 1450 feet above the sea. The mean annual temperature is about $72^{\circ} \cdot 5$ F., the maximum being about 92° and the minimum 62° . For these details I am indebted to my friend Mr. H. E. Weaver, an English engineer who resides there, and who is chief of the second section of the "Prolongamento." He entertained me most hospitably at his house for several days, and aided me greatly in obtaining specimens of all kinds, as well as in other ways. There is no high forest very close to Quipapá, though there are still patches of it on the higher hills here, as elsewhere. The lower slopes, where not cleared for sugar, are covered with a rather thick growth of brushwood, in which, particularly along the river, birds were rather abundant. The weather too had now become markedly finer; in fact, since leaving Recife, hardly a drop of rain had fallen. Soon after leaving Una I had made up my mind that any idea of getting to the S. Francisco in the limited amount of time (about a month) now at my disposal must be abandoned, as I was due at Cambridge by the middle of October. I very much regretted having to give up the Paulo Affonso, but getting there and back in a month would have entailed continual travelling, and I should have had no chance whatever of collecting. I therefore determined to go no further than Garanhuns or thereabouts, staying *en route* at various places to collect. At Quipapá I remained till September 6, and then went on a few miles to a Brazilian friend living at Vista Alegre, two houses in a valley off the main line of the

railway. From here I went, after a couple of nights, to Macuca, where I found a most hospitable (if somewhat primitive) welcome from Mr. J. Watt, also an English engineer employed on the Prolongamento. The country here much resembles that around Quipapá, but there is less forest and sugar and more *capoeira*. I continually added new birds to my list, and no doubt if I had had any assistance could have much increased the number both of species and specimens. But I had to do all my skinning myself; the Brazilians, though they talked much, did little, and that chiefly in snakes and lizards: my interpreter was useless for any purpose but to interpret (I doubt if he had ever fired a gun in his life), and my English friends were too busy with their professional duties to be able to spare much time to shoot; moreover, there were no guns available except those of the natives, and, as I have already said, the capabilities of these weapons as firearms were small.

After a few days most agreeably spent at Macuca I went on to Garanhuns, the termination of the "Prolongamento," distant about 80 miles from Una. Garanhuns is situated in the zone of country called the "Agreste," that intervenes between the forest-clad "Matto," which extends inwards 60 to 70 miles from the sea-shore, and the open, elevated country, or Sertoões (pronounced "Sertongs"), of the interior. The "Agreste" zone participates to some extent in the features of both "Matto" and "Sertoão"; the forests have not altogether disappeared, but are smaller in size and of a different character; the climate is much drier, and the vegetation lower and more scrubby in character.

In the Sertoões, I am told (for I did not actually get into the real Sertoões country), the vegetation becomes still more low and scrubby, and the aspect of the country generally arid and stony. There is little water, and cultivation is confined chiefly to the ridges of hills that intersect the general level of the plateaux of 3000-5000 feet forming the Sertoões. In the height of the dry season many of the shrubs and trees lose their leaves. The growth of cotton and the raising of stock are the two great industries pursued in the Sertoões,

which probably extend over nearly the entire area of the interior of the province of Pernambuco. The distance from Macuca to Garanhuns is about 33 miles; after leaving Canotinho, about an hour and a half's riding from Macuca, the aspect of the country begins to alter visibly. The soil becomes sandy, and the vegetation generally lower and more scrubby, with patches of forest in places. Great *Cacti*, too, some 40-50 feet high, and forming large trees in some places, become conspicuous features in the landscape, and two or three species of *Begonias* also appear. In bird-life the "Salta Caminho" (*Zonotrichia pileata*) for the first time appears, hopping about the sandy roads, and marking the changed nature of the country.

Garanhuns is a large village (although called a city) of perhaps more than 2000 inhabitants, and lies at an elevation of about 3000 feet above the sea. The country round is hilly, though none of the hills attain any great elevation; these are pretty uniformly covered with a thick scrub of low bushes and aromatic herbs, with, in some places, small patches of "*matto*." There is little water. The temperature is noticeably cooler than nearer the coast, though sufficiently hot when the sun shines; indeed, on account of its dry soil and rather bracing atmosphere, Garanhuns is acquiring some celebrity in Pernambuco as a sanatorium, during the dry season, for the residents in the lower parts. I was most hospitably entertained, during my week's stay at Garanhuns, by Senhor Doutor José Aloes Lima, the Juiz Municipal, who most kindly placed an empty house at my disposal, where I slept and kept my apparatus. The country round Garanhuns seemed to be rather rich in birds; but partly from the thickness of the scrub, which in some cases was nearly impenetrable, and partly, I think, from the recent occurrence of a prolonged "*Secca*," or drought, during which everybody who could went out and shot small birds indiscriminately, thereby rendering them very shy, I failed to get several species I saw there and did not elsewhere meet with. A more prolonged stay would, I feel sure, have added numerous species to my lists. I also believe that Garanhuns would

prove a very rich station for a botanist, judging from what I saw of its flora during my rambles after birds or insects.

Garanhuns is the principal town of a considerable district, and every Saturday a fair takes place there, which is largely attended by the "*Matutos*," or peasants of the country round. I was told this fair would be a capital chance of obtaining animals and birds from the country people who come in to attend it; and I therefore decided to stay a couple of days to witness it, rather than going on to S. Bento, in the Sertoões, about 35 miles north of Garanhuns, and returning thence by a different route to Macuca, as I had originally intended. However, the fair, though it certainly gave me an excellent chance of seeing "the natives" (and, perhaps I should add, of their seeing me), produced nothing, or next to nothing, in the way of "*bichos*," a most convenient term used in Brazil for denominating all and any animals from an elephant to a blackbeetle. I managed, however, to pick up a live "*Ema*" (*Rhea macrorhyncha*), of which more anon, at Garanhuns, as well as a lot of Tinamus, sundry Hawks, Guans, and other live birds, so that when I left I had a regular caravan of living animals, which necessitated my taking on an extra horse or two and man for their safe conveyance to Palmares. I finally left Garanhuns on September 19th, and returning by the same way as I came, stopped *en route* a night at Macuca and two days at Quipapá, and reached Recife September 24th. A few days were spent in packing up and settling things generally; and on September 29th I left, with my live animals, which had now increased to about 35 in number, in the Royal Mail Steamer 'Neva,' and arrived at Southampton October 15th.

Before concluding this account of my trip, I ought to return my best thanks to the numerous gentlemen in Brazil who did all in their power to help me, and especially to my friends Mr. Wells Hood of Cabo, who most kindly procured me numerous valuable introductions, to Messrs. W. Elliott and C. A. Craven of Recife, to Mr. Curling of Parahyba, as well as to Messrs. Weaver, Watt, Abel, and the other engineers of the "Prolongamento," and to Dr. Lima of Garanhuns.

The total number of species of birds of which I obtained or observed specimens during my trip was 116. In the following list they are treated of in systematic order, according to the nomenclature of Messrs. Sclater and Salvin's '*Nomenclator Avium Neotropicalium*,' unless otherwise stated. I am much indebted to Mr. Sclater for having kindly gone through and named the greater number of my birds for me, whilst Mr. Salvin was good enough to give me the names of the few others.

As far as can be judged from the results of a short trip like mine, the avifauna of Pernambuco is essentially South-east Brazilian, with few, if any, Amazonian forms. It would appear from my observations on the birds, and from the general features of the country, that Pernambuco is far less rich in birds than either Bahia or Pará, the comparative poverty no doubt being due to the long time that the country, at least near the sea, has been colonized, and to the consequent destruction of the primæval forests. Moreover, as the forest only forms a comparatively narrow zone along the coast, with a dry and elevated "campos" country behind, there has been no possible retreat towards the interior for the original inhabitants of the coast forests, and many of the most characteristic forms have, in consequence, disappeared or become scarce. Of course my collections do not represent any thing like the total number of species to be found in Pernambuco; but I think the above conclusion will be confirmed by further collections from that district.

From what I heard of the nature of the country, Ceará, and most likely Maranhão as well, must probably be included within the limits of the South-east Brazilian fauna, so that the boundary between it and the Amazonian province must lie still further north-west on the coast, whilst in the interior it may correspond to the watershed between the Tocantins and the Parahyba.

The following is an account of the birds of which I obtained or observed specimens. The specimens are mostly deposited in Mr. Sclater's collection.

1. *TURDUS FUMIGATUS*.

I am not quite certain as to the correctness of the above name, though it is probably this species that occurs in this part of Brazil, as the only specimen of this Thrush that I shot fell into a swollen stream and was lost. Two I bought alive also escaped.

The "Sabiá," as it is called by the Brazilians, is very much esteemed by them as game, and therefore relentlessly shot down; hence it has become a very shy bird, at least in the neighbourhood of towns. It has a rather pleasant song, and is also on this account sought after by the natives, who keep it as a cage-bird very commonly. I saw caged specimens in nearly every place I visited from Parahyba to Garanhuns, but only a few times observed it in its native state at Cabo and Recife, so can say nothing further on its habits.

2. *TURDUS RUFIVENTRIS*.

I found this Thrush common all over the districts I visited, except in the immediate neighbourhood of Recife. In its habits it much resembles the common Thrush of England (*T. musicus*), spending a good deal of its time on the ground in pursuit of its food. It is usually to be seen in paths in the lower second growth, or in the clearings for railways, or on the line itself, and is not found in the thick forests. The Brazilians call this Thrush, as well as the preceding species, "Sabiá," and esteem it highly for eating-purposes. Hence probably it has become rare near Recife, and shy elsewhere in the neighbourhood of towns.

Eyes brown; beak greenish yellow, the upper mandible greyer; feet dirty flesh.

+ 3. *POLIOPTILA LEUCOGASTRA*.

I first met with this elegant little bird near Parahyba, and subsequently saw it frequently in the interior between Quipapá and Garanhuns. It goes about in small companies of two or three, and is a most active little creature, in almost perpetual motion from twig to twig, the meanwhile constantly flipping its tail up and down.

+ Eyes brown.

4. *DONACOBIOUS ATRICAPILLUS*.

This bird I first observed from the train on the railway between Cabo and Una, frequenting the marshy bottoms of the valleys. I subsequently saw it at Cabo, and found it more or less abundant in suitable situations all along my route thence to Macuca. It is a very noisy bird, with a loud chattering cry. It flies about in small companies of three or four, and is found among the marshy vegetation that grows along the banks of the streams. The bird is a very conspicuous one, both owing to its noisy cry and the habit it has of fluttering its short and rounded wings, when the white bar at the base of the primaries forms a very much more striking mark than would be imagined from the skins. I heard the name "Casaca do Couro," signifying "Leathern Jacket," applied to this bird by a Brazilian friend who had paid some attention to animals; but whether it is the same bird as that mentioned by Capt. Burton ('Highlands of Brazil,' ii. p. 316) under the same name, and noticed by him on account of its remarkable nest, I do not know. I never saw *Donacobius* nesting. As mentioned by Burmeister (Thiere Bras. ii. p. 130) there is a narrow naked space, about an inch long, on the neck of this bird, behind the angle of the jaw, which shows conspicuously in the shot bird. It is coloured bright chrome-yellow (Burmeister says "*fleischroth*"), and with the bright yellow irides makes a freshly shot *Donacobius* a far more beautiful object than one that is skinned. This brightly coloured nude space is probably present in both sexes, as the only specimen I procured was a female. I do not at present recall any precisely similar case of ornamentation by a bright nude skin-space on this part of the neck in any other bird—certainly not in any other Passerine. The feet are grey.

5. *TROGLODYTES FURVUS*.

This is the common Wren of the country, and is very abundant everywhere in the neighbourhood of houses or gardens, though it is not much of a forest-bird. It has a remarkably strong song for such a small bird, and may often be seen perched on the roofs of the houses of the

villages in the early morning, carolling. For its notes it is, I think, on the whole the best singing-bird I heard whilst in Brazil.

Eyes brown ; feet flesh-coloured.

6. *BASILEUTERUS AURICAPILLUS* (Sw.)*.

I shot a single female specimen of this bird, the only one I saw, in the depths of some high forest near Quipapá.

7. *CYCLORHIS ALBIVENTRIS*.

I found this curious bird rather common nearly all over the country I visited, though nowhere abundant. It is found amongst the vegetation of the more open parts, usually singly, and seems to be a very quiet bird, hopping about from leaf to leaf of the bush or tree it is in, and not uttering any cry ; at least I never remarked any.

The irides are beautiful bright orange-yellow ; the strangely shaped bill has the upper mandible dark flesh-coloured, the lower pale bluish slate. The feet are pale dirty fleshy.

8. *HIRUNDO LEUCORRHOA*.

This Swallow I found very common in Recife, where it might be seen flying about in numbers in some of the streets, as well as over the rivers which separate the various parts of the town. I also observed it at Parahyba ; but in the interior it seems to disappear, and be replaced by the *Atticora* next mentioned.

+ 9. *ATTICORA CYANOLEUCA*.

I did not bring home any specimens of this Swallow, the only one I shot having been too much damaged to skin ; I have, however, little doubt that this is the species I met with, as I continually saw it in numbers, and was able to examine it often through my field-glasses. It was very abundant at Cabo, and might be seen there sitting in numbers, particularly in the morning, on the telegraph-wires of the railway opposite Mr. Hood's house ; I also saw it at Parahyba and Garanhuns, perched on the roofs and eaves of the churches, and therefore not to be shot at with impunity. In Recife,

* Cf. Berlepsch, *anteà*, p. 240.

on the other hand, I never saw it at all, though the last species, as already mentioned, abounded there.

10. *STELGIDOPTERYX RUFICOLLIS*.

This Swallow I found common in numerous places from Recife and Parahyba on the coast inland as far as Macuca. It perches freely, and may be often seen along the roads and railway, where there are cuttings exposed.

Eyes brown.

11. *DACNIS CAYANA*.

I only rarely met with this species, once near Caxangá, and another time near Recife, where I came across a small flock of three or four in an old, overgrown garden some two miles from Estancia; of these only one was a full-plumaged male. I also saw one or two near Parahyba.

Irides red-brown; beak blackish brown, with the base of the mandible fleshy; legs fleshy, the claws greyer.

12. *DACNIS PLUMBEA*.

I only met with this bird in the garden at Estancia, and there only saw it a few times. It hops about the trees and bushes in a systematic sort of way, going from leaf to leaf in search of small insects and other food, which it picks up off the leaves. I did not observe any full-plumaged male.

Eyes (in the female) greyish brown; legs dirty flesh-coloured; beak pale fleshy, with the culmen broadly darker, horny black.

13. *CÆREBA CYANEA*.

Only once did I come across this bird—a single specimen in immature plumage that I saw in the garden at Estancia.

14. *CERTHIOLA CHLOROPYGA*.

This little bird is one of the very commonest in those parts of Brazil I was in, being most abundant in all the gardens near Recife, and almost equally so elsewhere in the neighbourhood of houses, though sometimes seen in the wilder parts. It assiduously visits all the shrubs that may happen to be in flower in any particular spot, collecting from the

blossoms its meal of insects, mixed, no doubt, with the nectar of the flowers. It has a weak, though rather pleasing, song of a few notes, the last note being considerably more powerful than those that precede it. It is known by the Brazilians as "Guarratan," a name, however, which it shares with the *Euphonia* and some other Tanagers.

Eyes brown.

15. EUPHONIA VIOLACEA.

This violet-and-yellow Tanager I found sparingly round Recife, and also at Parahyba, both in gardens and in the vicinity of high forest. I did not, unfortunately, see enough of its habits to throw any light upon the *raison d'être* of the peculiarly-developed stomach of this genus, a feature first observed by the late Dr. Lund, and lately redescribed and figured by myself*. This bird is kept commonly as a cage-bird by the Brazilians, who call it "Guarratan," a name, as already observed, also applied to several other small brightly plumaged birds.

16. CALLISTE FASTUOSA.

This very beautiful Tanager, to my mind one of the finest of the beautiful genus it belongs to, is believed to be peculiar to the province of Pernambuco, from which skins are occasionally received by the dealers in Paris and elsewhere. It is a species often seen, too, alive in the larger Zoological Gardens of Europe, though no naturalist seems to have yet met with it in the wild state. It does not appear to be common in Pernambuco—at least I only met with it twice, once near Macuca, where I shot a female out of some bushy *capoeira*, and again at Quipapá, where I saw what I believe was this species in the virgin forest. The bird, however, was perched at a great height from the ground, in the topmost branches of a large tree, and only the brilliant orange-yellow of its rump was visible. Whilst staying at Cabo, a freshly shot adult of this bird was also brought to me to skin, so that probably

* P. Z. S. 1880, pp. 143-147, "On the Structure of the Stomach in certain Genera of Tanagers."

it is also to be found considerably nearer to the coast than the localities I saw it in.

Eyes brown.

17. *CALLISTE FESTIVA*.

I only saw this beautiful *Calliste* once, when I fell in with a small party of it in a patch of virgin forest near Quipapá, and succeeded in shooting a fine male.

Eyes brown.

18. *CALLISTE FLAVA*.

This beautiful, though peculiarly coloured, bird is, perhaps with the exception of *Tanagra cana*, the commonest Tanager in the provinces I visited. I met with it everywhere from Recife to Garanhuns; and though never seen in numbers, it appeared to be fairly abundant. It frequents chiefly gardens or plantations of fruit-trees, but I have also seen it in thick forest country. It was abundant in the garden at Estancia, frequenting the orange-trees, sapotís (*Achras sapota*), and other fruit-bearing plants; and I have also met with it feeding on the flowering shrubs of the virgin forest. It goes about either singly or in small companies, and most of the specimens seen are either immature or females. The adult males are usually met with singly, though I have seen three perched close together in the same tree. I failed in my endeavours to bring living specimens to England, though I got one as far as St. Vincent.

Eyes brown; feet lead-grey.

19. *TANAGRA SAYACA*.

This Tanager is abundant all over the country. It is found, like the last species, in small flocks of four or five, and is common near the vicinity of houses and gardens wherever there are fruit-trees. At Estancia it abounded, visiting the orange- and lemon-trees, also the sapotís, mamans (*Carica papaya*), and other fruits in season. It did not apparently mix with *T. palmarum*, and left the cocoa-palms to the latter species, preferring the lower and bushy trees. The Brazilian name is "Sayaçu," a name, however, which they also apply to *T. palmarum*.

Eyes brown.

20. TANAGRA PALMARUM.

This Tanager is very abundant near the coast, and may be seen in numbers quite close to Recife. In the interior it is less common, though I saw it once or twice near Macuca. The specific name is very appropriate, as the bird frequents the cocoanut-palms, flying in small flocks from one tree to another, and settling about the root of the "crown," where it probably finds abundant food in the shape of insects and spiders.

Eyes brown; feet leaden grey.

21. RAMPHOCÆLUS BRASILIUS.

I first met with this splendid bird on the road between Iguarassu and Olinda, and subsequently found it abundantly, in favourable situations, nearer Recife, as well as at Parahyba and all along the line of railway as far as Catende. It seems, however, an essentially low-country bird, and as the country rises in the interior disappears. This bird goes about, like several of the other Tanagers, in small parties, composed chiefly of immature or female birds, so that the number of those seen in the gorgeous crimson and black dress of the adult male is comparatively small. It is always to be found in the low bushes and vegetation that grow about the lower slopes and bottoms of the valleys in the neighbourhood of water, and is never, according to my observation, found in gardens or the virgin forests. It has a quick, rather loud, sharp, chirping note, of a single syllable, repeated several times in sharp succession, which one soon gets to recognize. The Brazilian name is "*Sangre de Boi*," *i. e.* ox's blood, from the brilliant crimson of the plumage of the male.

Irides orange-brown.

22. TACHYPHONUS MELALEUCUS.

This Tanager is widely spread over the province of Pernambuco, where I met with it at nearly all the places I visited, from Caxangá to Garanhuns; and I also obtained it at Parahyba. It is usually seen singly or in pairs, the black male with the chestnut female. The stomach of one I examined contained insects.

Eyes brown.

23. NEMOSIA PILEATA.

I obtained this species of *Nemosia* in the garden at Estancia, where, however, I only observed it once or twice. The only other place I met with it was at Cabo, where I once saw two or three in Mr. Hood's garden.

Eyes bright yellow; legs horny yellow, with the claws horny.

24. NEMOSIA FULVESCENS.

I first met with this Tanager at Quipapá, where it was not uncommon in the low bushy *capoeira* near the river. It was usually seen in small companies of three or four, hopping about amongst the leaves like a *Dacnis*. I also saw it at Garanhuns, but not nearer the coast.

Eyes brown; beak and legs grey.

25. SALTATOR MAGNUS.

I only once met with this bird, which I shot in thick and high forest some miles from Parahyba.

Eyes brown.

26. ORCHESTICUS CAPISTRATUS.

This curious Bullfinch-like Tanager I first met with near Vista Alegre, about halfway between Quipapá and Macuca. I subsequently saw it at both those places, as well as at Garanhuns; indeed it seems rather a common bird in this part of the province. It is nearly always seen singly near, but not in, high forest, and perches in the larger trees that rise above the bushes and undergrowth of the *capoeira*. It appears to be not at all shy, and is easily shot. The sexes are similar.

Eyes reddish brown; feet black-grey.

27. ORCHESTICUS ATER.

This bird was rather abundant round Parahyba in the neighbourhood of the forest, and in its habits resembles the last species. At Vista Alegre I found both species together in the same locality, but beyond that point it seems to be replaced by *O. capistratus*.

At Parahyba I obtained a specimen which is in all proba-

bility the *young* bird of this species, though it was the only one seen in that plumage. It is of a dark olive-green above, lighter below, with the forehead, chin, breast, and angle of the wing greenish yellow. It is probably *O. ater* in this phase of plumage that was described by Sclater as *Tanagra olivina* (cf. Sclater, P. Z. S. 1881, p. 213).

I bought a single living specimen of this bird in a shop in Recife, and brought it safely to London, where it is still living in the Zoological Society's Gardens. I never before saw it living in Europe.

Eyes reddish brown; the beak leaden grey, with the tip broadly black (in the adult).

+ 28. GUIRACA CYANEA.

The Blue Grosbeak I first saw on the road between Igua-rassu and Olinda, and I subsequently met with it at most of the places I stayed at as far as Parahyba and Garanhuns. It frequents low bushy ground, and is usually seen singly or in pairs. The Brazilians call it "Azulin."

Eyes brown.

29. ORYZOBORUS TORRIDUS.

I only twice met with this little Finch, which I saw singly near Cabo and Parahyba.

An allied species (*O. maximiliani*?) is kept as a cage-bird by the Brazilians, who give high prices for them, they being much esteemed for their song, which is supposed to be only surpassed by that of the "Patitiva" They call it "Bicuda," from its large beak.

+ 30. AMAUROSPIZA UNICOLOR.

Whilst staying at Quipapá a Brazilian servant of Mr. Weaver's brought me a fresh specimen of this rather rare little Finch, which he had obtained near the town. This was the only specimen I saw.

Eyes brown; feet fleshy grey.

31. SPERMOPHILA NIGRO-AURANTIA.

I obtained this species at Recife, frequenting the same localities as the next two, but it appeared to be less common.

I also saw, and shot, what I believe was a specimen of this bird near Vista Alegre, but did not succeed in finding it. The Brazilians call it "Caboclo," a name applied to the tamed aboriginal Indians in Pernambuco. It may sometimes be seen in Recife in cages with crowds of sundry other *Spermophilæ*, Canaries (*Sycalis*), Cardinals (*Paroaria*), &c.

† 32. *SPERMOPHILA GUTTURALIS*.

This little *Spermophila* was very abundant in the garden at Estancia, frequenting the reedy and marshy parts, where it congregates in small flocks, feeding on the seeds of the grasses, sedges, and other similar plants. I also saw it abundant afterwards at Quipapá, as well as in the low bush-covered country round Garanhuns, so that it is by no means confined to the sea-board or even to the neighbourhood of water. It is often kept as a cage-bird.

Eyes brown.

33. *SPERMOPHILA HYPOLEUCA*.

This species of *Spermophila* is also common and widely distributed, frequenting grassy or open places, and often coming into gardens. It appears to feed mainly on grass-seeds, and is social in its habits. The females are brown. Called by the Brazilians "Papa Cupim," *i. e.* grass-eater. This name it shares with *S. gutturalis*.

Eyes brown; bill (in the male) fleshy red.

A closely allied species (*S. plumbea*, distinguished easily by its smaller and black beak) I never succeeded in identifying for certain in a wild state, though it is greatly esteemed by the Brazilians as a cage-bird. They call it "Patitiva de Parahyba" (those caught at that place being supposed to be particularly excellent songsters) and often pay considerable prices for good singers. The song is loud for the size of the bird and rather pretty, though monotonous, and not at all comparable to a Nightingale's, or even a Red Cardinal's (*Cardinalis*).

34. *VOLATINIA JACARINA*.

This little Finch, though not very common as a rule, I found widely spread, extending from Parahyba and Recife on

the coast to Quipapá and Vista Alegre in the interior. The adult males may often be seen singly, and they have a peculiar habit of selecting some particular twig on a bush or small tree as a pet perch. Here they sit for a long time, twittering out a little song of a few notes, and then jumping vertically up some little way in the air, and, turning a somersault, alighting in the same place. I have watched them on several occasions repeat this performance a number of times consecutively, continuing, in fact, till they were disturbed. They would then fly off to some other place, and go on with their performance. The females and young birds are brown, and these seem to be more sociable, going about in small flocks. The Brazilians call the bird "Saltadô."

The eyes are brown.

35. PAROARIA LARVATA.

The Red-headed Cardinal I found common at Parahyba, and again saw it in the neighbourhood of Garanhuns, so that it occurs all over the district I traversed. It is usually seen singly or in pairs in the more or less cleared and open ground near cultivation. Many dozens are brought into the market at Recife to sell as cage-birds.

The Brazilians call it "Gallo do campina."

+ 36. ZONOTRICHIA PILEATA.

This bird marks the approach of the traveller, as I have already mentioned, to the Sertoões of the interior. I never once saw it on the coast, or anywhere in the "*matto*" zone, though on passing Canotinho and getting on to the sandy soil of the interior, it almost at once becomes abundant. Round Garanhuns it was very common, hopping about the highroads, often two or three together, and very tame.

The Brazilian name is "Salta Caminho," or "Road-Hopper."

37. COTURNICULUS MANIMBE.

I only got this bird at Caxangá, where it seemed rather common, frequenting the heaps of rubbish left near the railway station.

Eyes brown.

† 38. *CHRYSOMITRIS YARRELLI*.

Of this pretty little bird I obtained a living specimen at Parahyba, which is now alive in the Zoological Gardens. I subsequently saw one near Garanhuns, and a pair near some forest close to Quipapá. The Brazilian name was, I understood, "Pinta Silva" (? Pintasilgo = Goldfinch).

39. *SYCALIS FLAVEOLA*.

The "Brazilian Canary" is a very abundant bird in the parts of Brazil visited by me, being found from the coast, at Parahyba and Recife, to the interior. Large flocks of it, sometimes containing one or two hundred individuals, may be seen in suitable localities, which are usually the more or less cleared grounds in the neighbourhood of *engenhos*, or sugar-farms. In these places it frequently consorts with numbers of the little green Tapacú Parrakeets (*Psittacula passerina*). A specimen which I shot near Cabo "towered" in the air, as wounded Partridges and other birds often do, to a height of fifty or sixty feet or more, and then dropped down dead; on examination I found it had been shot through the brain.

The "Canario" is a very common cage-bird with the Brazilians, nearly every house having one or more pairs.

40. *CASSICUS PERSICUS*.

This is one of the commonest and most characteristic birds of the country near the coast, where it is very abundant, and may be seen commonly, even in the neighbourhood of Recife, nearly anywhere where cocoa-palms grow. It usually goes about in small parties of about four or five, which keep up, when perched, a continuous chattering, often leading to their discovery before being seen themselves. Towards evening they seem to collect in larger parties, as at that time numbers might often be seen returning homewards, always flying in the same direction, and usually making for a clump of palms, on which, no doubt, to pass the night. In the interior it is much less common, and I often went several days without seeing one. The Brazilians call it "Sheshou," and keep it often in cages.

Irides deepish blue.

41. *ICTERUS TIBIALIS*.

This bird I first observed at Quipapá, where it was not uncommon in the vicinity of the town, flying about in small companies of twos and threes. I afterwards found it at Macuca and Garanhuns, and saw a single specimen in the garden at Cabo a few days before I sailed, though I did not see the species at all during my previous stay there. The bird is also found at San Lorenzo, a village about 20 miles west of Recife, as a living specimen I bought in Recife came from there. The bird is not rarely to be seen caged in the houses of the Brazilians, who call it "Sheshou de Bananeira," to distinguish it from the common "Sheshou" (*Cassicus persicus*). It is also sometimes called "Soldado," or soldier. I succeeded in bringing three specimens alive to London, two of which are still living in the Zoological Gardens, where it has not before, I believe, been exhibited alive.

✓ Eyes reddish brown; feet bluish grey.

42. *MOLOTHRUS BONARIENSIS*.

I never met with this species in the wild state, but saw several in cages in Recife, Quipapá, and elsewhere, and was told that it was found in the neighbourhood.

43. *LEISTES SUPERCILIARIS*.

This Red-breasted Hangnest I only saw at Cabo. Here it was abundant in the open, down-like fields that are found on the *engenhos* where the forest has been cleared and subsequently inclosed for the use of cattle and horses. I only once or twice saw the full-plumaged birds; all the others were immature, and these kept in large flocks like Starlings, feeding, like them, largely on the ground on the insects and other creatures always present where cattle are feeding.

This is, I believe, the most northern locality from which the species has yet been recorded. It is replaced further north by a representative (*L. guianensis*) which has no white supercilia.

44. *APHOBUS CHOI*.

A single female skin that I brought home is apparently referable to a small form of this species, which I found rather abundant at one or two localities, Vista Alegre and Macuca,

in the interior of Pernambuco. Though local, the bird was common where it occurred, flying about in large flocks, like Starlings, in the neighbourhood of sugar-plantations. They were rather wary and not easily approached. The Brazilians called it "Arumará."

Eyes brown.

45. FLUVICOLA CLIMACURA.

This bird is, I consider, the most characteristic of the country of all the species met with during my trip. Save in the thick forest, it may be seen nearly everywhere, even in the busiest parts of the town of Recife, close to the sea, and everywhere it is conspicuous alike by its tameness and its sharply contrasted colours. To the structure of a Tyrant-bird it unites the habits of a Wagtail and a good deal of the appearance of a *Saxicola*. It spends a great part of its time on the ground, running swiftly, like a Wagtail, after the insects which it puts up, and seizing them as they rise from the ground. It is by no means afraid of man, coming up to within a few yards of the houses, and mixing freely with the poultry and dogs of the establishment. Usually it is seen in two or threes, but never, so far as my experience goes, in flocks or larger parties. Frequently two may be seen perched on the top of a wall or house, "standing up" to each other, with fluttering wings, spreading tails, and outstretched necks, chattering away vigorously at each other the whole time. It is nearly the only bird that is not shot or eaten by the Brazilians. They call it the "Lavendera," or Washerwoman, from a legend of its having formerly performed those functions to the Virgin Mary. Hence they hold it almost an act of sacrilege to kill one, and think very much the same of a man who shoots a "Lavendera" as we do in England of one who kills a Robin. In consequence of this immunity from destruction, the Lavendera is, as I have already said, exceedingly tame and familiar everywhere, and even nests close to the houses. One or two nests that I observed were built in low bushes, and composed of a loose fabric of grass-stems, vegetable fibres, &c. Both the birds seemed to take

part in the construction of the nest, and made a great business of it, though it was apparently done in a desultory sort of way, and as much for pleasure as business. At least two nests I observed closely were never finished, and apparently ultimately abandoned.

46. *ARUNDINICOLA LEUCOCEPHALA*.

This bird I only observed near the sea-coast round Recife, at Caxangá, and near Parahyba. It frequents the margins of ponds or rivers, as its name well indicates, and is usually seen solitarily, though near Caxangá I came across three or four together on the edge of the same pool, a family party of parents and young birds, the latter being distinguishable by their less-defined colouring.

Eyes brown; beak blackish horny, the lower mandible at base (normally) yellowish; legs and claws black, the soles paler.

47. *MACHETORNIS RIXOSA*.

I obtained this bird at Recife, and subsequently saw it at Cabo. Its habits resemble those of *Myiozetetes*, from which, indeed, I did not, at the time of getting my specimen, distinguish it.

†48. *TODIROSTRUM CINEREUM*.

This little Tody-like Tyrant I found rather common from Recife and Parahyba to Garanhuns. It is usually seen singly, but I have sometimes seen two or three together, chasing each other and fighting furiously, like Humming-birds. It hops about nimbly from twig to twig of the particular bush or shrub it is in, in search of insects, and does not, as far as I saw, select a particular perch from which to dart off at any passing insect, like so many of its congeners.

49. *EUSCARTHMUS GULARIS*.

I only met with this bird once or twice round Garanhuns, where it occurred usually singly, actively hopping and creeping about the thick scrub which is so prevalent there, very much in the same way as the last species.

Irides brown.

50. SERPHOPHAGA SUBCRISTATA.

I shot a single specimen of this bird in the thick scrub near Garanhuns.

51. PHYLLOMYIAS SEMIFUSCA.

This little bird was abundant in gardens round Recife, resembling in its habits *Elainæa pagana*.

+ 52. ELAINEA PAGANA.

This Tyrant I also met with commonly, from the sea-coast to Garanhuns. In its habits it resembles the other larger Tyrannidæ, but has no loud call-note. It is common in gardens, and has rather a pleasant, low, warbling-like song of a few notes; when the bird sings, its throat-feathers are considerably puffed out. The elongated head-feathers form a sort of crest, which is erected when the bird is excited.

Eyes brown.

53. MYIOZETETES SIMILIS.

This species of Tyrant-bird is very abundant in those parts of Brazil I visited. In its habits it resembles *Pitangus sulphuratus*, being usually seen singly or in pairs, perched in conspicuous positions on the projecting or topmost branches of the trees, and flying off from them in pursuit of its prey. It is common in gardens, even in the neighbourhood of houses, and, compared with the *Pitangus*, it is a silent bird, without the characteristic notes of that species. The Brazilians, however, do not discriminate between the two, and call both alike "Bentivi."

Eyes greyish brown.

54. PITANGUS SULPHURATUS.

This bird is one of the very commonest and most characteristic of the country, being seen nearly everywhere, and from its habits most conspicuous, even to the casual observer. The "Bentivi," as it is called, from its note, almost always selects some prominent twig or branch of a tree on which it perches, and from that post of vantage flies off after any passing insect; then, having captured it, it returns to its favourite spot to repeat the process, varied only by con-

tinually uttering its loud, somewhat plaintive, but screaming cry, *ben-ti-vi, ben-ti-vi*, &c. Frequently two may be seen together, but they are not at all gregarious in their habits. Where these birds are common, as in most gardens in the neighbourhood of houses, the ear soon gets to recognize their continued *ben-ti-vis* as a pleasant evidence of the Neotropical fauna. The flight is weak and undulating and never long sustained.

55. *HIRUNDINEA BELLICOSA*.

The first specimen of this curiously coloured Tyrant I saw was just after landing at Parahyba, where it was perched on the roof of one of the houses close to the river. Subsequently I saw it again several times, both there and at Quipapá, in similar positions, but being always in the towns, and on houses, or, more frequently, churches, I was unable to get a shot at one, for fear of consequences in the shape of a "row" with the police or other authorities. From its post of vantage it flies off after passing insects, and after capturing them returns to its former perch, in the manner of other Tyrannidæ. I was rather surprised to meet a pair of the same birds a few days afterwards at Macuca, both of which I got. They were met with in *capoeira*, a long way from any houses, perching in the larger trees which rose above the thick scrub and bushes below.

+ Eyes brown.

56. *MYIOBIUS NÆVIUS*.

I shot a single specimen of this Tyrant in a patch of high forest near Macuca.

Eyes straw-yellow.

57. *MYIOCHANES CINEREUS*.

I only got this species twice, in the high trees of the forest near Quipapá and at Macuca. It appears to be solitary in its habits.

Irides brown; feet black; upper mandible blackish-brown, lower one pale orange.

+ 58. *MYIARCHUS TYRANNULUS*.

I first met with this bird near Quipapá, and afterwards

obtained several specimens between there and Garanhuns. It is a quiet solitary bird, which usually I met with perched on the sides of paths or tracts through the brushwood, and was not shy.

Irides brown.

59. TYRANNUS MELANCHOLICUS.

This is nearly as common as *Pitangus sulphuratus* or *Myiozetetes affinis*, and occurred at every place I collected in. It is solitary, and in its habits does not materially differ from those species, though it is perhaps less frequently found near houses, resorting more to the open country, and being often seen in large fields where there are few or no trees. It then selects a stone, post, or some small shrub for its perch. It is a quiet bird, unlike the *Pitangus*. Brazilians and strangers alike confound all these yellow-breasted Tyrant-birds under the common appellation of "Bentivi."

60. PIPRA RUBRICAPILLA.

I first met with this bird in the outskirts of the forest near Caxangá, where I obtained a pair of specimens and saw others. I also afterwards saw what I believe to have been a young male (just acquiring the red colour of the head) in some scrubby forest between Recife and Beberibé, but not having a gun at the time, could not get it. My experience of this *Pipra* was that it was nearly always found in the thickest and most dark parts of the forest, where no other birds were to be seen or heard. They feed, I think, on berries.

The irides (of the male at least) are pale yellowish white, in the female or young bird they are darker.

61. CHIROXIPHIA FAREOLA.

I shot a single male specimen of this bird, the only one I saw, in some thick and dense forest near Parahyba.

† 62. PACHYRHAMPHUS ATRICAPILLUS.

I obtained a single female specimen of this bird from a small boy at Macuca, who had shot it with an earthen pellet discharged from a bow—a style of shooting much indulged in

by the youthful Brazilians, who become very good marksmen in this rather primitive method.

Irides brown.

63. CONOPOPHAGA LINEATA.

I only once met with this bird, and that was one day when out shooting with Mr. Weaver in a patch of forest on the top of the hills near Quipapá. We were going along a narrow path in the forest, which was so thick as to prevent our seeing more than about a yard in any direction. We could hear a number of birds with a very loud chattering cry around us, and occasionally could get a glimpse of one as it hopped about in the dense undergrowth. A lucky shot on my friend's part secured a specimen; but further efforts were fruitless. The silvery-white tufts of feathers on the sides of the head are very striking on the freshly shot bird.

Irides brown.

I may here remark that the genus *Conopophaga* has been wrongly placed by Messrs. Selater and Salvin in their valuable 'Nomenclator.' By them it is included as a member of the "Oligomyodæ," the Conopophaginæ being placed as the first subfamily of the Tyrannidæ. We know, however, from the researches of Müller (Stimmorgane d. Passerinen, p. 39, and, *ibid.*, Garrod's edition, p. 32), that *Conopophaga aurita* possesses a typically *Tracheophone* syrinx, so that it is amongst those forms that the genus must be correctly located (*cf.* Garrod, P. Z. S. 1877, p. 452, also a paper by the writer, P. Z. S. 1881, p. 435).

64. FURNARIUS FIGULUS.

The Oven-bird does not appear to be found in the immediate neighbourhood of Recife, but I found it at nearly all the other places I stayed at, from Parahyba to Garanhuns. At Cabo, where I first saw it, it was abundant close to Mr. Hood's house, both in the garden and on the line of railway adjoining. It is a very noisy bird, and, in the mornings particularly, may often be seen, sometimes two or three together, perched on the roofs of houses or on the telegraph-wires, pouring forth a loud song of peculiar chattering notes,

It also spends a good deal of its time on the ground, and when there walks in a peculiar way, with an action that somewhat reminds one of a high-stepping horse. Unfortunately I never saw a nest of the *Furnarius*, nor did I hear from the Brazilians any stories of it similar to those narrated by Burmeister.

65. *SYNALLAXIS FRONTALIS*.

This bird and the next I did not distinguish on the spot, so I can give no exact particulars as to the exact range of the two species, which may very possibly occur together. I met with these birds at all the localities I stayed at, from the coast to Garanhuns, and usually they were abundant. They frequent low shrubs and bush-covered ground, and creep about actively in the thick vegetation, singly or in pairs, uttering continually a loud cry, repeated several times, sounding like *acqui, acqui*.

Irides brown; feet dirty fleshy; beak grey, the upper mandible, except at base, darker.

66. *SYNALLAXIS ALBESCENS*.

I did not at the time distinguish between this and the last species, which it much resembles in habits.

The eyes are red-brown.

67. *SYNALLAXIS CINNAMOMEA*.

This is one of the most abundant birds in Pernambuco and Parahyba, being found nearly everywhere in suitable positions; that is, where the country is not densely forest-clad and in the vicinity of water. It was very abundant in the garden at Estancia, and is a very noisy bird, with a peculiar loud chattering cry. A couple of males, which are larger and brighter than the females, might often be seen flying after and chasing each other, and in these cases a female bird was usually not far off. It builds a large nest of sticks, many of which are of considerable size and thickness. In Mr. Hood's garden at Cabo a pair of these birds had a nest in a low bush a few yards from the windows, and I used often to watch the bird flying in from the garden with sticks, sometimes considerably longer than the birds themselves. I think both

sexes took a share in the construction, in which they were most assiduous. The nest was a large, somewhat triangularly shaped mass of sticks and twigs, thickly matted together, and with an opening for the birds at one end. Very possibly the same nest is used for a number of years in succession, being repaired and increased in size every breeding-season.

Eyes chestnut-brown; legs blue-grey, with the soles lighter.

68. *THAMNOPHILUS PALLIATUS*.

This bird is abundant in some places and its presence is betrayed by its very curious loud chattering notes, which are commenced in a high key, and fall lower as their conclusion is approached. The bird creeps about, singly or in pairs, the bushes and small trees of the more open parts, and is by no means shy. I got specimens at Cabo and Parahyba, and also saw it near Macuca and Garanhuns, so that it is probably widely distributed.

The irides (in both sexes) are pale yellowish white; the beak and legs are leaden grey.

69. *THAMNOPHILUS TORQUATUS*.

I only once got a specimen of this bird, which I shot near Quipapá; afterwards I obtained one from my friend Herr Müller, who had shot it near Recife, where also I believe I saw it once or twice. The bird I shot at Quipapá attracted my attention by its remarkable cat-like miauling cry, very different from that of *T. palliatus*.

The irides are chestnut-brown.

70. *HERPSILOCHMUS PILEATUS*.

This little bird was rather abundant near Garanhuns, frequenting the thick scrub, and flying actively about, in small parties of three or four, amongst the tops of the bushes, like a *Parus* or *Polioptila*. I did not meet with it elsewhere.

71. *HERPSILOCHMUS*, sp. inc.

I shot a single specimen of a second species of the genus near Macuca, but, having been preserved in spirit, it is not

in sufficiently good order to describe or identify. Mr. Selater, who thinks it is probably new, has kindly given me the subjoined note on it :—

“A single example of a species allied to *H. pileatus* of Pelzeln, but probably distinct, having the head striated with white.”

72. *FORMICIVORA GRISEA*.

I obtained specimens of this bird at Parahyba and Quipapá, and also believe that I saw it in the second-growth woods outside Recife, but it was nowhere common.

Eyes brown; beak black; feet dark grey, the nails blacker.

73. *FORMICIVORA RUFATRA*.

I got this bird in the bush-covered country around Parahyba, but did not afterwards meet with it.

Irides brown; legs lead-coloured.

74. *APHANTOCHROA CIRROCHLORIS*.

I shot a single specimen of this Hummer out of a large tree, in which it was perched high above the ground, in a patch of forest covering the top of a hill near Macuca.

+ 75. *CHRYSOLAMPIS MOSCHITUS*.

I shot a specimen of this widely distributed species out of a high tree in some forest near Garanhuns.

76. *CHRYSOBRONCHUS VIRESCENS*.

The commonest Humming-bird at Recife, where it may be seen all round the town in gardens, coming sometimes into houses; and I have also seen it once or twice hovering round the flowering bushes in the gardens in the town itself. I also got it at Cabo. The name applied to all Humming-birds is “Bejaflor,” or “Kiss-Flower.”

77. *EUCEPHALA CÆRULEA*.

This Hummer I believe I saw several times near Recife, in the lanes and roads outside the town. At Parahyba it was rather common, and there I shot specimens.

78. *HYDROPSALIS FORCIPATA*.

Whilst staying at the house of my friend Dr. Lustoza,

situated in a valley off the line of railway between Quipapá and Macuca, I shot a single specimen of this bird. It was with another flying about at dusk over the ground near the house, and settling occasionally on the pathway. The long outer rectrices gave it a curious appearance on the wing. Brazilian name "Bacuráu."

79. *CHLORONERPE AFFINIS*.

I shot a single specimen, a young bird, of this species in the outskirts of some forest near Macuca. This was the only Woodpecker I obtained specimens of, though I saw at various times at least three others, but always out of shot. The Brazilian name for Woodpeckers generally is "Pica-pao."

Irides brown; legs and beak dark grey, the lower mandible whitish grey.

80. *CERYLE AMERICANA*.

This species of Kingfisher I found abundant in the neighbourhood of the coast round Recife and at Parahyba. It occurred even just outside the town, a couple of these birds haunting the small stream and ponds in the gardens round Estancia, perching on the walls and on the mangrove-bushes on the look out for small fish and other animals as prey. When perched the tail is directed nearly straight backwards, in a line parallel with the axis of the beak, an attitude which gives the bird a remarkable character.

81. *GALBULA RUFO-VIRIDIS*.

I saw my first live Jacamars when driving between Iguarassu and Goyanna, in the thick forests that in many places border the highroad between the two towns. Here they seemed to be rather abundant, coming out in the early morning and perching on the trees or telegraph-wires (!) lining the road. I once saw as many as three close together, though they are usually solitary. They seemed quiet and apathetic, and not at all shy, flying off, like *Tyrannidæ*, from their perch after food and again returning. Subsequently I again met with Jacamars, but only singly, in the woods near Caxangá and at Parahyba. I tried very hard to obtain live specimens, but, in spite of offering good rewards, the

Brazilians were much too lazy to trouble themselves about procuring living birds. The name "Jacamar" I never heard used by them; they call the birds "Bejaflor do matto," or "Bejaflor Grande," evidently thinking the bird only a kind of gigantic Hummer.

The irides are brown.

82. CROTOPHAGA ANI.

The "Anu," or, as it is called by many Englishmen, the "Black Parrot" (I suppose from some fancied resemblance in the bill), is one of the most characteristic birds of Brazil. They may be seen everywhere in the neighbourhood of cultivation, coming even into the gardens round Recife, and being most abundant in the neighbourhood of cattle. They are eminently social birds, the flocks usually numbering about 20 individuals, though sometimes much less. They like to perch on low trees and bushes, and a bush may often be seen with a dozen or more of these "black birds" settled on it. If alarmed one rises and flies slowly away, the others following with a chorus of their low, plaintive, rather whistling note, which sounds a good deal like *emui*, with the last syllable accented. In flight the long tail is extended straight out behind the body, and the wings are kept rather horizontal and move but slowly and feebly. The Anu seems very fond of the sun; and I have sometimes seen twenty or more perched in a row on the top of a wall sunning themselves and preening their feathers. Whilst so engaged they often elevate their tail and bring it forward over the head, in much the same way as Toucans sometimes do.

83. GUIRA PIRIRIGUA.

This Cuckoo I only saw at Parahyba, where I once or twice came across a small flock of three or four individuals in the garden near the town. In flight and cry it much resembles *Crotophaga*; and the Brazilians rightly recognize the affinity of the two genera by calling the present species "Anu branco," or "White Anu," as opposed to the common or black species.

† 84. *DIPLOPTERUS NÆVIUS*.

I only once saw this bird, at Garanhuns. It was feeding in the road, from which it flew up, as I approached, into a neighbouring tree. Thence it flew down again into an adjoining maize-field, where its colour matched well with that of the soil. A successful stalk on my part ended its career.

+ / The irides are palish brown.

85. *PIAYA CAYANA*.

This Cuckoo I first saw at Cabo; afterwards I met with it at Parahyba, and again at Quipapá. It is usually seen singly, and is apparently by no means rare. Though generally seen in trees, it seems awkward and by no means at its ease off the ground. It sits quietly for a long time, and then, when disturbed, creeps off through the leaves and flies away on the other side. It has a loud screaming cry, which frequently betrays its presence. Once, at Quipapá, I saw one being mobbed by some small birds, just as Owls or Hawks often are in this country. The Brazilians know the bird well, as it is rendered conspicuous both by its colour and cry, and call it "Almo do Gato." The colouring of the soft parts makes this bird, when alive or freshly killed, far handsomer than would be inferred from the skin alone.

The irides are bright ruby-red and the eyelids scarlet; the beak is yellowish green; the feet grey, with the soles yellowish.

86. *CONURUS JENDAYA*.

This Parrakeet, called by the Brazilians "Jandaia," may often be seen tamed in houses, and to this species no doubt belonged most of the *Conuri* that I continually saw flying in small flocks of from four to twenty or so, both at Parahyba and between Quipapá and Garanhuns. These birds, however, were so wary that I only once succeeded in at all making out what they were by means of a glass, which clearly revealed their yellow undersides. At other times they were invariably high in the air, far out of gun-shot and almost out of sight; indeed their presence was usually first indicated by their cries, which were audible long before they them-

selves became visible. Only once, in a patch of forest near Quipapá, did I get anywhere within shot of these birds, and then they were off directly they became aware of the presence of a stranger.

87. *CONURUS CACTORUM*.

Numerous living specimens of this little Parrakeet were brought to me by the natives at Garanhuns, who called it simply "Perriquito." I have already noticed the abundance of large *Cacti* in the sandy districts around Garanhuns, and on these, no doubt, these Parrakeets largely subsist. I never succeeded in identifying the bird in a wild state, though I every day saw or heard flocks of a *Conurus* flying high in the air around Garanhuns. Prince Maximilian also met with it in the Sertoões of Bahia (*cf.* Burmeister, *Thiere Bras.* ii. p. 170).

88. *CHRYSOTIS ÆSTIVA*.

This was the only species of *Chrysotis* I saw at all in the districts I traversed. Of it, however, one sees many dozens for sale in all the shops where live birds &c. are sold in Recife, and nearly every hut in the country has also its "Papagaio." In the wild state I only met with it in the forests near Parahyba, where we several times saw it, usually flying high over the trees in small flocks, and, like other Parrots, vociferating vigorously whilst on the wing. With the aid of my "Caçador," Antonio, we succeeded, after a long hunt, in finding a lofty forest tree where the Parrots were feeding, as evidenced by the heaps of its "shelled" fruit that lay on the ground below, or came pattering down from above as we stood beneath the trees. Hoping to get a good view of some Parrots "at home," I proceeded to lie down on my back beneath the trees, in order to have a good look at the birds above through my glasses. However, they saw us before we could "spot" them, hidden as they were by the thick canopy of leaves, and flew screaming off to some less disturbed spot, no doubt to resume their meal on some other tree.

The Brazilians call *Chrysotis æstiva* the "Papagaio" *par excellence*. Artificially produced varieties, with more or fewer

yellow feathers, are called "contrafeitos," and are considered to be both more beautiful and more valuable than those that have not been thus tampered with.

89. PSITTACULA PASSERINA.

I first saw the South-American "Love-bird" on the road between Iguarassu and Olinda, and subsequently in nearly every place I stayed at. In the interior it is very abundant, flying about in large flocks, often in company with the Brazilian Canary (*Sycalis flaveola*), generally frequenting the gardens or plantations round houses, especially where there are castor-oil (*Ricinus*) trees. Its flight, though quick, is not prolonged. You see two or three alight in a bush or small tree, which sit there quietly till they are joined by two or three more; then perhaps a few more arrive, and so on, till twenty or thirty are assembled in the same tree, and after a while they fly off, together or in small batches, as they arrived. Mr. Weaver, at Quipapá, told me that a few weeks before my visit these Parrakeets were immensely numerous there, and that the numbers we then saw were nothing to what there had been previously, before the greater part had gone more inland towards the Sertoões, as they do towards the commencement of the dry season. The Brazilians call it "Perriquito Tapacú."

Eyes brown.

90. STRIX FLAMMEA.

Whilst staying at Quipapá a boy brought me a specimen of a Barn-Owl, which, as far as I could see, differed in no important respect from English specimens.

91. GAMPSONYX SWAINSONI.

I shot a single specimen of this pretty little Hawk out of a high tree near Parahyba.

Irides red; feet orange-yellow; beak and claws black.

+ 92. HERPETOTHERES CACHINNANS.

Whilst staying at Garanhuus I bought a beautiful pair of living specimens of this Hawk, which had come, with some other birds, from Aguas Bellas, a village in the Sertoões, some

seventy miles beyond Garanhuns. Unfortunately they succumbed to the jolting and heat of the journey down to Palmares, dying the day before we reached Recife. The Brazilians considered it a rare bird, and called it "Couaõ." As noticed by Burmeister (*Thiere Bras. ii. p. 92*), these birds, after a good meal, showed a naked "craw" protruding through the breast-feathers.

Irides dark brown.

93. POLYBORUS THARUS.

The "Cara-cará" I saw several times on the coast, both near Recife and around Parahyba. In the interior I did not identify it. On the wing it has a decidedly fine appearance.

94. CATHARTES AURA.

The Red-headed "Urubú" is never, as far as I saw, to be met with in towns, though it was by no means rare in the country. I first saw it at Goyanna, and afterwards met with it plentifully at Parahyba and near Cabo. It is usually seen singly or in pairs; but on one occasion, at an "engenho" near Cabo, I saw a considerable number, perhaps twenty, of it together. The Brazilians, as a rule, did not distinguish between *C. aura* and *C. atratus*. *Gypagus papa*, however (a species I did not meet with, though it occurs sometimes not far from Recife), is well known to them as the "Urubú Ré," or King Urubú.

95. CATHARTES ATRATUS.

The "Urubú" is one of the first birds to attract the stranger's eye on his landing in Recife, as every day several of these birds may be seen flying heavily about in the outskirts of the town, or even over waste places in it, on the look out for offal of any kind. Before Recife boasted of a drainage company (a benefit it now possesses) the Urubús are said to have been much more numerous than they now are, and, indeed, they were then the main agents for sanitary purposes. Even now they are useful in this way, to some extent, as scavengers, and a considerable fine is imposed for shooting one. The white patch on the remiges is very conspicuous on the bird when flying, and diminishes somewhat

the monotony of its appearance. Outside the large towns this Urubú is replaced, apparently, by *Cathartes aura*.

— 96. ARDEA CANDIDISSIMA.

When on the Parahyba river, between the bar at its mouth and the anchorage below the town, I saw great numbers of this beautiful white Egret, either flying slowly up stream in twos and threes, high in the air, or wading about on the mud-flats left bare by the tide in search of food.

— 97. BUTORIDES CYANURUS.

This small Bittern was very common in marshy ground round Recife, and a pair or two frequented the reed-beds at the bottom of the garden at Estancia. These had a nest in the mangrove-bushes near the stream. The nest was a loose platform of sticks, a couple of feet or so, I was told, above the ground.

The native name is "Socoa."

98. SARCIDIORNIS CARUNCULATA.

Of the South-American Black-backed Goose I found a fine living pair in the garden at Estancia, and their owner was kind enough to send them to London for the Zoological Gardens, where they now are. These birds had been brought down some months before from the Sertoões of the interior by a "matuto" for sale in Recife.

According to Mr. Selater (P. Z. S. 1876, p. 695), in the American *Sarcidiornis* "the sexes are nearly equal in size, the female bears a comb on the head as well as the male, and the flanks are conspicuously black." These remarks were based upon the examination of three specimens then living in the Zoological Gardens, supposed to be "an adult male and an adult and younger female," and to have been imported from Maranhão. The pair of birds I brought back, however, do not agree with the above-quoted description, inasmuch as the female bird is much smaller than the male and has no wattle at all on the head, in those respects agreeing with the hen of the Indian species (*S. melanonota*). Of the three birds mentioned by Mr. Selater, two have since died, and on dissection turned out to be males; the third is still (February 10) alive,

and in all respects agrees with the male of my pair, having a large comb, and being much bigger than the female. There can be no doubt, therefore, that this specimen too is a male, and that Mr. Sclater's so-called "females" were, in reality, only young males. The female of my birds has little, if any, more black on the flanks than a female *S. melanonota* in the adjacent inclosure, so that the only remaining available distinction between the two forms is the black sides of the male of the American bird; and this character, as far as I have yet seen, seems to hold good.

[P.S. Since the above was written, both my birds have, unfortunately, died. Their sex was verified by dissection.—May 19, 1881.]

99. COLUMBA PICAZURO.

This Pigeon is well known to the Brazilians as the "Azú Branca," or White-winged Dove. I was told it was sometimes abundant round Parahyba, and also heard of it at Quipapá, Garanhuns, and other places. However, I never succeeded in seeing it wild, though I got several living specimens at Parahyba and elsewhere.

+100. COLUMBA RUFINA.

I obtained a single living specimen of this Pigeon at Parahyba, where I was told that, at some seasons of the year, when certain fruits were ripe, it was common in the forests around.

The Brazilians know it as the "Gallega."

101. SCARDAFELLA SQUAMOSA.

I first met with this pretty Dove in some of the gardens in the outskirts of Parahyba. Afterwards, when riding between Macuca and Garanhuns, I several times flushed little coveys of it, which rose up from the road and took refuge in the nearest tree. Usually these parties consisted of about four. When rising they make, apparently with their wings, a curious rattling noise, whence they are called by the Brazilians "Rôla Cascavel,"—*Cascavel* meaning a rattle, and being also the name applied by the natives to the Brazilian rattlesnake (*Crotalus horridus*), which is by no means rare in the district.

102. *CHAMÆPELIA GRISEOLA.*

I got specimens, through Herr Müller, of this little Ground-Dove from the neighbourhood of Recife, where, I think, I also saw it several times, as well as near Parahyba.

103. *CHAMÆPELIA TALPACOTI.*

The Rôla, as this little Pigeon is called by the Brazilians, is a very common bird all over the parts I visited. It is found solitarily or in pairs, and is much esteemed for the pot, and persecuted in consequence.

104. *LEPTOPTILA OCHROPTERA.*

Of this Dove, or a closely allied species, I got one or two living specimens at Garanhuns, which had been caught in the surrounding country. The Brazilians know it as the "Juruté."

105. *PENELOPE SUPERCILIARIS.*

I obtained a single living specimen of this bird at Garanhuns, which had been caught originally at Panellas, a small village north of Quipapá. I was told that further in the interior, towards Aguas Bellas, the present species is not uncommon in some of the Serras that intersect the plateau of the Sertoões. Its Brazilian name is "Jacú."

106. *ORTALIS ALBIVENTRIS.*

Whilst staying at Macuca, one evening, a little before sunset, I was surprised by the very loud calls of a bird I had never heard before, and which proceeded from the wooded hills on the other side of the valley where Mr. Watts's house lay. On inquiring of him what bird it was, I was informed it was the "Aracuaõ," which was described as a sort of small Pheasant, of a brownish colour, that was sometimes met with in small parties in the forests, and was well known to the natives. A few days after, at Garanhuns, a live Aracuaõ was brought to me which had been caught in the neighbourhood. This I bought and brought alive to London; and it turns out to be the present species, which was also found by the late Dr. Wucherer in the neighbouring province of Bahia. I subsequently saw other living examples of the species in Recife.

With regard to the peculiar loud cry of the present species, it may be remembered that, like many other Cracidæ, the male bird has a convoluted trachea, the fold (which lies outside the pectoral muscles) in some cases extending as far as the posterior end of the sternum.

107. *RALLUS LONGIROSTRIS*.

My friend Herr Müller, of Recife, during my absence in the interior, got a specimen of this bird for me, which he had shot in the close vicinity of Recife.

108. *RALLUS NIGRICANS*.

A second species of Rail, also brought to me alive at Quipapá, I identified with this species from Burmeister's description. It fell a victim to rats during my absence.

Irides bright red; feet dull red; beak yellowish green, greyer at the tip.

109. *ARAMIDES CAYENNENSIS*.

Whilst staying at Quipapá some boys brought in for sale a living specimen of this Rail, which they had caught near the town.

110. *CARIAMA CRISTATA*.

The occurrence of the Cariama in the Sertoões of Pernambuco is a fact of some interest, as it marks, I believe, at present the most northern limit of this curious genus. I did not myself see the Cariama in the wild state; but I saw, at Garanhuns, one that had been captured by the Indians near Aguas Bellas, a town some seventy miles further S.W. in the direction of the Paulo Alfonso falls. I was also told that it occurs not rarely in the open country near San Bento, another small town about thirty-five miles north of Garanhuns, and, like Aguas Bellas, also in the Sertoões. The Brazilian name of the Cariama is, I may observe, "Siri-ema," a form also used by Burmeister in his elaborate treatise on this bird. "Ema," as we shall presently see, is the name given to the Rhea (*R. macrorhyncha*), which is found along with the present species in the open plains of the Sertoões, and "Siri" is a diminutive of Indian extraction, the word thus signifying "little Ema."

111. *PARRA JACANA*.

The "Jaçaná" (the *c* is soft, and the final *a* strongly accented) is a very common and conspicuous bird in the low country near the sea, and may be seen on nearly every large weed-covered pool of any extent. Near Recife it might be seen in numbers on some large ponds on the Beberibé road, about a mile outside the town; and at Parahyba it was equally abundant close to that place. I did not see it further inland than Catende. In its actions the Jaçaná strongly resembles a Waterhen. It is not apparently shy, but usually keeps well out of reach on the weeds in the middle of the pond. When flying, the canary-yellow-coloured primaries are very conspicuous, and, with the light colour of the soft parts, greatly show off the chestnut and black plumage of the bird. Near Recife I saw three or four of the young birds in down, of a mottled black and white colour, walking about with their parents on the weeds.

112. *GALLINAGO FRENATA*?

A Snipe is not uncommon at some time of the year in the more marshy districts of Pernambuco, and affords some sport to the English and other residents in Recife. I saw the bird once or twice at Cabo, and between Quipapá and Macuca got from a Brazilian friend a nest of two eggs, on which the hen bird was sitting. Unfortunately my friend omitted to shoot the bird; but I believe there is no doubt that it belongs to the present species.

The Brazilian name is "Agaxadera."

113. *CRYPTURUS TATAUPA*.

The "Nambu," as the present species of Tinamou is called, is not at all an uncommon bird in the neighbourhood of Macuca and Garanhuns, where I several times heard its cry, and once or twice flushed it. Its flight, however, though strong, is short, the bird soon settling again; and the country is so thickly covered with brushwood and undergrowth that it is, in consequence, no easy matter to shoot these birds, at least without the aid of dogs. Sometimes they are stalked and shot by the Brazilian sportsmen; but more usually they

are snared. At Garanhuns I bought a lot of seventeen Nambus and a pair of the next species for 2500 reis (about five shillings)—not a bad bargain perhaps!—from a boy who had just caught them; and afterwards I had many more offered to me for sale.

The beak is vermilion-red, the feet dirty pink-red, and the irides rich red-brown.

114. *CRYPTURUS NOCTIVAGUS*.

This Tinamou is known as the “Zabillé;” of it, too, I got living specimens at Garanhuns, which had been caught in the district round. One of these that died, and which I preserved in spirit, Mr. Salvin has identified with the above-named species.

115. *RHYNCHOTUS RUFESCENS*.

I saw one or two living birds of this species in confinement at Garanhuns, and was informed that it too occurred in that neighbourhood.

116. *RHEA MACRORHYNCHA*.

Rhea macrorhyncha was originally described by Mr. Selater some twenty years ago (P. Z. S. 1860, p. 207, & Trans. Z. S. iv. p. 356, pl. lxix.), from a specimen living in the Zoological Society's Gardens, of unknown origin. Since then several more specimens (some half dozen in all, perhaps) have been secured at intervals; but the exact locality of any of these has never, I believe, been precisely ascertained, though it has been supposed to be the “campos” of Northern Brazil or Guiana (*cf.* Selater, P. Z. S. 1877, p. 160).

When I arrived in Pernambuco I made anxious inquiries about the existence of any Rhea in that part of Brazil, and was told by several persons that it existed in the interior, in the dry and open Sertoões; and the dry country near the falls on the S. Francisco river was especially mentioned as a locality where it was to be found abundantly. In the small museum in the “Gymnasium,” I found two stuffed Rheas, one adult, and one in the tawny-brown plumage of immaturity, which, as far as I could see, were probably *R. macrorhyncha*; these were said to have come from the Sertoões. At Garanhuns I

was fortunate enough to come across a living specimen of this bird, brought along with a *Cariama* and two *Herpetotheres cachinnans*, from Aguas Bellas, where it had been captured young by the Indians. This bird was not yet adult, though nearly full-grown. As I was very anxious to make out for certain the species, I bought it, and, after a good deal of trouble, succeeded in getting it alive to Recife, and eventually to London, where, however, unfortunately, it did not live long. The "Ema," as the Rhea is called by the Brazilians, is well known to the people in the Sertoës; it is now said to be rare near Aguas Bellas, but, I was told, is still found pretty numerously (as is the *Cariama*) in the open grass-covered country near San Bento. Indeed during the *secca*, or drought, that has prevailed for the last few summers in this part of the country, and which resulted in a general famine, the "Emas" became so tame through hunger that they might be found close to the town itself, and even came into the gardens, and so were caught. My friend Mr. Weaver, of Quipapá, told me he had had a young live Ema for some time in his house, which had been sent him as a present by a lady. This specimen came from Pianco, a small town in the province of Parahyba; so that evidently the range of *Rhea macrorhyncha* extends to the north of Pernambuco. I hope, ere long, to obtain, through the agency of some of my Brazilian friends, specimens of the eggs and young of this bird to compare with those of the commoner species. What the exact northern extension of the latter is I do not exactly know, though it certainly extends north of the River Plate into Uruguay; probably the barrier between the two species is a continuously wooded country lying between that district and the Sertoës of Bahia, where the species is also most probably found. Capt. Burton, who alludes to the existence of a Rhea in Brazil several times, saw one himself on the banks of the S. Francisco near the Rio do Corrente, above Bom Jardim ('Highlands of Brazil,' ii. p. 296), and others at Jaguára (*l. c.* ii. p. 26), in the province of Minas.

I hope on some future occasion to be able to compare the skeletons of *Rhea americana* and *R. macrorhyncha*; exter-

nally, though certainly closely allied, the latter species is distinguishable by its generally browner colouring, by the darker crown, which is nearly black, and by its longer bill.

XXVIII.—*Ornithological Notes made in the Straits Settlements and in the Western States of the Malay Peninsula.*

By Lieut. H. R. KELHAM, 74th Highlanders. (Part I.)

COMPARATIVELY little having been written concerning the ornithology of the Malay peninsula, the following notes may prove of some interest, more especially to those ornithologists fated to pass most of their life in the far East. That something about Malay birds, however meagre it may be, is much wanted, I well know from personal experience, having still fresh in my memory the up-hill work of my first few months in the country. These I spent among the jungles of the peninsula, daily shooting heaps of specimens, yet without the means of satisfactorily determining their identity or finding out any thing about them beyond what I myself observed, only knowing this bird to be a *Pitta*, that to belong to the *Picidæ* or *Cuculidæ*, but in most cases being quite in the dark as to their particular species, though afterwards Jerdon's 'Birds of India,' a few volumes of 'Stray Feathers,' and some of the monographs, notably Mr. Sharpe's beautiful work on the Kingfishers, gave me much assistance. So, with the view of helping any one, very likely without a library close at hand, about to take up the study of Malay birds, I have put down my experiences, however slight, about each species I met with, at the same time adding details which, with very few exceptions, have been taken from my own specimens before they were skinned.

Regarding the Malay peninsula in an ornithological point of view, the range of mountains running down the middle of the country may be said to divide it into two divisions—the Western or Indo-Malayan, where the avifauna has much in common with that of India and Ceylon, and, on the other hand, the Eastern, of which the ornithology shows a strong